

## SUPERCONDUCTING SINGLE PHOTON DETECTOR

Roman Sobolewski  
Grigory N. Gol'tsman  
Alexey D. Semenov  
Oleg V. Okunev  
Kenneth R. Wilsher  
Steven A. Kasapi

### ABSTRACT OF THE DISCLOSURE

A single photon detector includes a superconductor strip biased near its critical current. The superconductor strip provides a discernible output signal upon absorption of a single incident photon. In one example, the superconductor is a strip of NbN (niobium nitride). In another example, the superconductor strip meanders to increase its probability of receiving a photon from a light source. The single-photon detector is suitable for a variety of applications including free-space and satellite communications, quantum communications, quantum cryptography, weak luminescence, and semiconductor device testing.